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COVER—Tom struts his last be-
fore gracing the Thanksgiving table.
Photo—Courtesy, The Turkey World
Magazine.

NOTE — Technical Editorial cour-
tesy the Master Gardener.

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Alfalfa Appears in The State . . . . . . . 26
SEVENTEEN THOUSAND DOLLARS from 50 acres of single cross hybrid seed corn! That was one of the accomplishments last year of Champion Farmer John J. Gannon and his father, William P. Gannon, on their 785-acre farm near Valeria, Iowa. Hog sales totalled over 400 head. In a recent month, 16 purebred Guernsey cows, three of them dry, returned $504.78 over feed costs. Seventy head of purebred Aberdeen-Angus cows, and their calves, provide a profitable outlet for roughage. So does a flock of sheep. The Gannons bale 7000 bales of hay annually. Careful pasture management, manure and commercial fertilizers, and a soil conservation program keep the farm highly productive. For economy and efficiency in operating their farm equipment, Champion Farmer Gannon has found it pays to depend on Firestone Champion Ground Grips. In the photograph, Sheila Ann Gannon with her grandfather, William P. Gannon, and her father, Champion Farmer John J. Gannon.

For more information about Champion Farmer John J. Gannon, write to The Firestone Tire & Rubber Company, Akron, Ohio.

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Only FIRESTONE CHAMPION Ground Grips take a "CENTER BITE"
CHALLENGING OPPORTUNITIES IN AGRICULTURE

Recently I had occasion to examine closely a road map of South Carolina and it gave me a new sense of values although many advantages of this great state were not shown on the map.

Stretching across the state from the hills of the Piedmont, almost parallel in their course to the sea, is one of the finest water systems in the world. All the little creeks and branches which radiate like the limbs of a tree were not on the map. Our great system of primary roads which cover the state and connect all sections was shown in detail. Ten thousands of secondary roads, many of them top soiled and serviceable the year round, were not on the map but they are real. Also our marvelous climate and our fine forests and fields could not be shown. When we consider all these advantages it is easy for us to understand why people from other parts of this nation are intrigued by the valuable assets of the state when they visit us. Maps cannot give the full picture of the state's resources and values. There are few states that can present a more favorable composite of natural values.

The forests of the state contain values that await developing. Some cotton manufacturing plants which formerly manufactured cotton goods are now using rayon from the forests of the state. Growing trees for the production of rayon has now become an important phase of our agriculture. Furniture building, fabrication, and meeting needs of many sorts are possible with the great variety of trees which grow in South Carolina.

The clay resources are tremendous. Outcroppings of valuable clays may be noticed along the road banks in many parts of the state. Some appear in large and valuable deposits. We shall soon appreciate their importance because the ceramic engineers of Clemson are busy discovering important uses for them. This is certain to encourage the manufacturing of many useful clay articles.

The map did not show the rich bottom lands that parallel the most homes. Perhaps the manufacture of Stumphouse Mountain cheese will require far greater quantities of milk than now produced. Maybe a great dairy industry will develop throughout the state and the milk marketed in the form of fine, cured cheese. It would be a magnificent sight to see these stream lands cultivated and abounding with fine cows but this cannot be unless permanent and profitable marketing becomes a reality.

The production of 100 bushels of corn on an acre is not difficult when there is an ample supply of water. It is equivalent to the production on seven or more acres on some South Carolina farms in years when the rainfall is low. Why should there be any hesitancy in establishing practical farm irrigation throughout the state? Think of the saving in labor and fertilizer. Surely it deserves much thought and is worthy of development. Water is abundant and is distributed splendidly in all parts of the state.

South Carolina waters are well known for a large variety of excellent fish. Interest in fresh water ponds has resulted in an expansion of opportunities for fishing which is one of nature's greatest sources of pleasure. These fresh water ponds have given fresh fish to many farm families and many more are needed. The ponds may just as well serve two purposes—namely, fishing and irrigation.

The map showed a rugged coastal area with narrow strips of land skirting the sea. Nowhere else is there more inviting territory for sportsmen, for commercial fishing or for pleasure. Why not oysters and fish scientifically? This might be a great potential industry if more were known of the values.

Growing better plants through methods of selection and breeding; processing agricultural products for advantageous marketing and incidentally more profit to the grower; the application of chemistry in improving and preserving the products of the farm; and strengthening our industries through the improvement of the products of the farm are rich goals for us to achieve.

Scientists, business leaders, and thinkers with vision, determination, and courage are what South Carolina needs and deserves. The men of Clemson are at work but many more are needed. Opportunities, among a wonderful people, in an enviable climate, and with about everything a human being should desire in life, are here for your consideration. Knowledge, wisdom, and a willingness to work are essential if you want to become a part of the group that can make reality out of these visions.

By DR. R. F. POOLE
President of Clemson College

OCT. - NOV. - DEC. 1947
FIGS IN SOUTH CAROLINA

PRODUCTION MOSTLY FOR DOMESTIC CONSUMPTION;
GROWN IN ALMOST ALL SECTIONS OF STATE

By T. L. SENN
Instructor of Horticulture

Fig growing in South Carolina is mostly a home enterprise. There are from a few to a thousand or more trees in every county. According to the Department of Agriculture, 1940 Census the eight leading counties with trees of bearing age are: Greenville, 1,377; Florence, 1,149; Orangeburg, 1,110; Spartanburg, 1,059; Anderson, 934; Lexington, 893; York, 828; and Darlington, 701.

Orchard plantings are generally disappointing, but growing figs for home use and nearby markets should be encouraged. A few trees growing about buildings and in yards will supply the family with a fruit that is used in many ways and the surplus may be sold at nearby markets for a cash return. Figs must ripen on the trees for best flavor. They are highly perishable and will not stand shipment.

Fig trees are easy to propagate and a home planting can be produced at very little expense. The simplest and most generally used method of propagating figs is by means of stem cuttings from a tree known to do well in the locality. Recommended varieties for South Carolina are Brown Turkey, Celeste, Magnolia, Green Ischia and Brunswick. Cuttings should be made in the latter part of the dormant season, usually in February. The cutting should be about 8-10 inches long, the upper end severed just above a node, the lower end severed just below the node and of 1 or 2 year-old wood; tips and soft growth aren't satisfactory. They are set directly in the nursery row in well drained and well prepared soil. The depth of planting is governed by the length of the cutting. They should be planted quite deep so that only one bud is exposed and spaced 10 inches apart in the row. In case of dry weather, watering in the early spring will aid in the growth of the cuttings. These cuttings root early, grow rapidly and make good trees for permanent planting in the fall. These trees may be expected to bear a few figs the second year, gradually increasing to a full crop by the fifth year. Fig trees may also be propagated by layers. Suckers arising below the ground surface frequently root, and they may be separated from the parent tree and planted also.

Spring of low nitrogen mixed fertilizer for they are easily stimulated to make rank leaf growth at the expense of fruiting.

Fig trees require little pruning; just enough to keep growth within bounds and to keep the tops open to sunlight and air to remove dead wood. Pruning should be done during the winter months, preferably after the coldest weather is past but before growth starts in the spring.

Most fig varieties bear two crops a year; a light one in early summer borne on previous season's wood, and the second crop in mid-summer or late summer borne on current season's wood.

The fig is subject to numerous diseases and insects most of which are not serious enough to receive special attention in home plantings. The nematode root knot (a very small eel like or wormlike organism) is a serious pest of figs and is found practically everywhere that figs are grown. There is less root knot development in trees growing about buildings and in chicken yards than in orchard plantings, less in heavy soils than in sandy soils.

Providing the tree with good growing conditions seems to be the best way to combat the nematode. The first 2 or 3 years after planting are harder on a tree, so it should receive special attention at this time. Fig fruits often split and sour as they ripen and various insects then eat the fruits. The ripe fruit should be picked promptly; this will aid in controlling the spread of the organism that causes decay. Pruning the tree so that the top is open to allow sunshine and air to enter after a rain helps to prevent decay. Birds often eat quite a lot of fruit but about all that can be done to avoid this loss is to harvest the fruit as promptly as possible.
DYNAMITE

DRUDGERY IS TAKEN OUT OF DITCHING;
NEW, FASTER METHOD IS DEVELOPED

Dynamite, if properly used under certain conditions is one of the easiest methods of excavating ditches that is in use today. Ditching with dynamite, as compared with other methods of ditching, has the advantages of being faster, cheaper, and simpler. There is no overhead expense for equipment; no large pile of soil is left along the ditch, and no limit is placed on the size ditch which may be dug.

Two distinct methods of blasting ditches, the propagation and the electric, are used. By the propagation method, which is generally used in swamps or other wet soils, only one hole is primed. The concussion produced from this explosion is sufficient to propagate the detonation through the wet earth and set off the whole line of charges. Since the concussion of the initial blast will not carry well over eighteen inches, care should be taken not to space the charges more than that distance apart.

The electric method may be used in almost any type soil except dry sand, in which it is practically impossible to blast ditches. In this method, sible blasting caps, which are inserted in every charge, are connected in series, or in parallel series, and exploded simultaneously by a blasting machine. Since the propagation method requires the priming of only one charge, it is the cheaper of the two and should be used whenever the soil is wet enough to transmit the propagation wave.

When blasting a ditch, several methods of loading the charges of dynamite are used. These are the Single-Line Method, the Cross-Section Method, the Post-Hole Method, and the Relief Method. In all except the Post-Hole Method, the charges are loaded one above the other. The dimensions of the ditch are the main factors in determining which of these methods to use.

The Single-Line Method, just as its name implies, is a single line of loads spaced at equal intervals along the center line of a proposed ditch. Extreme care should be taken in placing the charge with the top of the last load not more than twelve inches beneath the surface, except in special cases. If solid ground lies below the wet soil at the bottom of the proposed ditch, the charge may be placed directly on the hard ground. Since the dynamite blast is prevented from acting downward by the hard ground, its entire force is directed upward, producing satisfactory results even if the top of the last load is more than twelve inches below the surface.

To prevent a rounded end when using the Single-Line Method, two small charges should be placed on both sides of the center just past the last charge, making the end of the loaded section resemble the letter "Y".

The Cross-Section Method of loading is similar to the Single-Line Method in that it consists of a single line of holes down the center line of the proposed ditch. Perpendicular cross rows located at every other hole is the only difference. When wide, shallow ditches are desired, the Cross-Section Method is desirable and has been used with much success.

This method, with a slight variation, is sometimes used to clean out filled-in drainage ditches, provided the depth is not more than half the width. Instead of cross rows being placed at every other hole, they are (continued on page twenty-four)
Hort. Products Research Lab.
of
Clemson College

Research in Processing
Fruits and Vegetables of South Carolina

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"Where the Best Canned and Frozen Peaches in
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built cans of several convenient sizes. Every can is marked
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seed it will inoculate.
PEPPER INVESTIGATION

SOUTH CAROLINA AMONG LEADERS IN PEPPER PRODUCTION

The annual production of red peppers in the United States is approximately one million pounds. This acreage is grown mostly in California, Louisiana, Mississippi, New Mexico, Arizona, and South Carolina. The main production area in South Carolina is located in Florence county was estimated at 3,000 acres, and was valued at approximately $750,000. Now started accumulating the pepper is the desirable "Bank" variety, which is known to have reduced the yield of peppers as much as 22 percent. Pepper seed from the latest advanced generations of promising strains have been released to the growers ever since 1943.

Although several varieties have been found with several good characters, this breeding work will continue until the ultimate goal is reached in which a variety is found possessing all of the desired characters. So far, 302 strains have been developed from the original selections made in 1943.

Along with this breeding work, Mr. Martin is accumulating and maintaining a "Pepper Gene Bank" which will be invaluable to the pepper breeding program. The "Bank" consists of pepper varieties of all types from all over the world.

By O'NEAL MILLER
Horticulture, 1948

be long and smooth, highly pungent, easy to pick, disease resistant, easy to dry, and retain their color during storage.

In the beginning of this breeding work, seed was saved from twenty-four plants of the Japanese type and sixty-five plants of the Cayenne type selected at Florence. During 1942-43, the plants were grown in greenhouses and self-pollinated. During 1943, the progenies of the selfed plants plus seed from the original plants were planted at Clemson. Thirty-five percent of the Cayenne type have been eliminated due to un-productiveness and undesirable plant types. All of the Japanese type were kept as they have a higher degree of uniformity, and possess other desirable characters which may be valuable in the future breeding work.

After several years of breeding work, several selections have been found with marked improvement over the Cayenne varieties which are now available to the growers. Some selections show resistance to nematode root knot, bacterial leaf spot, and mosaic diseases as well as having other desirable characters. However, the obviously important factors have not been combined in a single variety. From this point on, it will be necessary to carry out a hybridizing and testing program in order to combine as many of the desired characters in a small number of varieties or in a single variety.

The pepper growers have benefited considerably from the breeding work so far. Plant sterility has been eliminated from all strains. The
POLLINATING WITH BEES

IMPORTANCE OF BEES AS POLLINATING AGENTS BRINGS INCREASED DEMAND FOR THESE INSECTS

By Wm. R. TRAYLOR
Entomology, 1948

The honeybee has proven to be by far the most effective pollinating insects for horticultural crops. Many truck farmers who specialize in the production of the crops listed above, have made provisions by which their crops are properly pollinated by the use of honeybees. Bees may be rented by the colony for the purpose of pollinating crops. The usual rental price varies from $5.00 to $10.00 per colony or hive. The price is based on the loss of bees and on the honey produced during the period which the bees are rented.

Seed growers have become aware of the fact that their yields per acre increase if bees are present in sufficient number. Some seed crops are wind pollinated but the presence of bees has often shown a marked increase in the production of seed. Since bees are well suited for the pollination of legumes, the production of seed, especially from clovers, has been increased tremendously.

Flower growers have been using bees very successfully in the last few years as cross pollinators for the production of new varieties of flowers.

Agriculture in general has taken very little responsibility in increasing and stabilizing the honeybee population. It has become increasingly evident in recent years that distribution of the honeybee population in some areas is completely out of balance. Migratory beekeeping by some of the large commercial beekeepers has partially offset this difficulty. There still remains a large area in which the population of pollinating insect is far below what it should be. The cucumber and cantaloupe growers in lower South Carolina are becoming aware that they need bees in order to produce better crops.

Corn, though originally considered wind pollinated, produces a better crop if plenty of pollinating insects are present. It may be possible by the use of bees as pollinators to produce more corn than is at present being produced.

In January, 1944, at the meeting of the National Federation of Beekeepers’ Association, a Honey and Pollen Plants Committee was appointed to acquire a closer relationship between the various Agricultural groups which are dependent upon pollination for the production of many agricultural crops. Mr. David Dunavan, Associate Professor of Entomology and Zoology, of Clemson College is a member of this committee. For several years he has carried on investigations along beekeeping lines, one of these being detailed studies of the relationship of bees to South Carolina plant life.

The importance and value of pollination by honeybees in the near future may create a new era in the production of Agricultural crops. World shortages of food have pointed to the necessity for increased production of food crops. In order to insure adequate pollination of our crops, the U. S. Department of Agriculture has asked for a country wide increase of 6 percent in the number of colonies of bees for 1947. The South Carolina quota calls for 2 percent increase. Unfortunately the current shortage of beekeeping supplies and equipment is preventing much, if any increase. Close cooperation between all allied Agricultural groups and beekeepers is paramount for the increased production of their respective goods.

The interest of scientific men in this problem is exemplified in the following expression from Professor Dunavan: “The close association between our flowering plants and pollinating insects, especially honeybees...

(continued on page eleven)
RAISING THE DAIRY CALF

RAISING OF CALVES MOST IMPORTANT IN
CARE AND MANAGEMENT OF DAIRY HERD

By R. M. HANCKEL
Dairy, 1948

There is no more important detail in
the care and management of a
dailey herd than the raising of calves.
A sufficient number must be raised
to replace cows that go out of the
herd. An important consideration in
calf raising is that of avoiding intro-
duction of diseases. By depending
upon the purchase of milk cows to
replenish those that go out of the
herd, there is great danger of intro-
ducing one or more of the infectious
diseases with which cattle are afflic-
et.

The young calf needs a ration
which not only furnishes all the nu-
trients necessary for maintenance
and growth but which is strikingly
different from rations of mature ani-
mals in that it must be highly diges-
tible. Milk is the only feed that will
satisfactorily nourish the calf from
birth until it is several weeks old.
The digestive tract of a calf only a
few days old cannot digest high fiber
feeds such as hay and silage. It is
important, therefore, that calves be
fed milk until they are able to uti-
lize feeds containing starch and fi-
er. Even after this time milk should
be fed to supply amino acids, vita-
mins, and minerals, in which the oth-
er part of the ration may be defi-
cient.

Lack of care during the first few
days usually means the loss of a
large number of calves that might
easily have been saved. The breed-
ing records of the herd should be
watched in order to know when cal-
ves are expected to be born. Prepare
a box stall a day or two in advance.
This stall should be thoroughly clean-
ed and disinfected. It should then
have large amounts of clean, dry
bedding placed in it. Drafts should
be avoided although fresh air is de-
sirable. The calf should always be
kept dry and warm.

As soon as possible after the calf
is born, paint the exposed part of the
navel cord with tincture of iodine,
using a small brush or a piece of
cheese cloth. If iodine is not avail-
able, use a 5 to 10 per cent solution
of a coal tar disinfectant, placing
this in a cup and holding up under
the calf so that the navel cord is
immersed in the solution. Repeat the
treatment daily until the cord be-
comes dry. This helps to prevent dis-
ease germs from entering the body
of the calf at that point.

Teaching the calf to drink is an
operation that requires considerable
patience, as some calves are slow in
learning to drink from a pail. The
calf should be left with the mother
for one or two days. This helps to
relieve the pressure on the cow’s
udder and also the calf learns to
nurse faster. The best method for
teaching the calf to drink from the
nipple pail is by wetting the nipple
with warm milk and forcing it into
the calf’s mouth. The calf will learn
to nurse from the nipple pail earlier
if the flow of milk is started by
squeezing the nipple a few times
with the hand. Use milk from
the mother of the calf for feeding
the first few days, unless the milk
is not suitable on account of its be-
ing thick, stringy, or too rich. Milk
that is rich in fat sometimes causes
digestive disturbances. After the calf
is five to seven days old, milk from
the herd may be substituted for the
mother’s milk. The nipple pail is not
yet widely used; however, this pail
has the advantage that the calf
drinks the milk slowly, enabling it to
go to the right stomach where it is
digested correctly. In drinking from
an ordinary pail the milk is gulped
down going into the wrong stomach
where it ferments and causes diges-
tive disturbances.

A good rule to follow in determin-
ing the amount of milk to be fed is
that 1 pound of milk should be fed
daily for each 10 pounds of live
weight of the calf, with a maximum
of 10-15 pounds daily. Plan to feed
the calf twice daily at nearly equal
intervals as possible. The milk being
fed should be at body temperature
(100° F).

Feed liberal amounts of whole
milk to the calves until they are four
weeks of age. During this period use
every effort to encourage the calves
to eat grain mixtures and legume
hay. Keep a supply of mixed concen-
trates of different kinds, such as
wheat bran, ground oats, cotton seed
meal, and ground corn, where the
calves have constant access to them.

When silage is available it may be
fed to calves as soon as they will
eat it, which is usually at three
months or more. At this age, feed 2
or 3 pounds daily and increase the
amount about 1 pound per day each
month of the calf’s age.

Calves should be turned into a sepa-
rate pasture when six months of
age or more and shade should be pro-
vided in very hot weather. Make sure
that they are receiving sufficient
feed to keep them growing, also a
constant supply of fresh water and
common salt.

Well grown, vigorous animals are
usually those that have had excellent
care from birth and are much more
resistant to diseases. A good dairy
man, therefore, takes the job of
raising calves as an important one.

OCT. · NOV. · DEC. 1947

NINE
ROOT KNOT OF TOBACCO

ROOT KNOT DEVELOPED INTO DREAD;
cuts tobacco quantity greatly

By LEWIS B. SMITH
Agronomy, 1949

During the past several years root knot has developed into one of the most feared diseases of tobacco in South Carolina. Although many controls and preventative have been suggested and recommended, almost every farmer's tobacco crop in the state is plagued with the disease. In some sections of the state the quantity of tobacco has been sliced in half.

This disease is caused by a microscopic eelworm, called a nematode, which bores into the tobacco root and produces knots or swellings of various sizes. This nematode not only affects tobacco, but also lives as a parasite on practically every vegetable crop grown, as well as cotton and sweet potatoes. Once a plant is infested with this pest, there is little hope of more than a fair yield. This disease occurs in the tobacco plant bed and in the plant after it has been set in the field.

In the plant bed severe infestations cause marked stunting and yellowing of plants. Enlargements in the main and secondary roots are distinctive symptoms. Once the nematode has entered a plant bed and infested the plants, the plants are rendered practically useless to the farmer. This disease can be controlled in the plant bed by moving the bed to a new uninfected area or by sterilizing the soil with uramon or a combination uramon-cyanamid treatment.

Although root knot affects the plant bed, the majority of the damage is done after the plants have been set in the field. Besides causing the tobacco to turn yellow and become stunted, it is more subject to wilting during periods of dry weather or hot sunshine. A female nematode matures at the age of three weeks, depending on the temperature, and lays hundreds of eggs which are sometimes held together in masses by a gelatinous material. Under favorable conditions these eggs hatch into larvae, which remain within the same root or migrate through the soil and infest other roots.

Aeration of the soil is favorable to hatching of the eggs. A crust on the soil reduces aeration and delays hatching. After the eggs hatch if no susceptible plants are available, the larvae gradually exhaust themselves and die. Larvae are more susceptible than eggs to killing by various conditions.

One of the most effective ways of combating nematodes is by starvation. To obtain the maximum control of nematodes by starvation, weeds must be destroyed every ten days in warm weather to keep the worms from maturing and producing eggs. The interval between plowings may gradually be lengthened to a month or two months in cold weather.

Although these recommended controls will combat the root knot nematodes efficiently, many farmers have accepted this loss to nematodes as a percentage loss which would have occurred anyway. By practicing these controls, root knot could be virtually wiped out in the span of a few years.

The author would like to ask the tobacco farmers of South Carolina to practice aeration of the soil, rotation of crops and other preventative and controls which would annihilate root knot in the tobacco of South Carolina.
ANIMAL HUSBANDRY DEPARTMENT EXPANDS

EQUIPMENT AND CATTLE ADDED IN THE ANIMAL HUSBANDRY DEPARTMENT’S EXPANSION PROGRAM

By H. Z. WOODFIN
Animal Husbandry, 1949

sold for $6,000.00, which was more than the champion brought.

The Animal Husbandry Department has a small herd of Angus started. There are now fourteen of them. The foundation of this herd was purchased at the Bray’s Island Plantation of Yemassee. The females are being bred to General 2nd. He is also from Bray’s Island. The Angus are noted for refinement of bone and quality of meat.

Experimental work is being carried on with winter-grazing. Italian rye grass and crimson clover have given gratifying results and promises greater use in the future in the livestock programs of the South. Work is also being done in temporary pastures. An experiment is now being run on the relative values of kudzu, permanent pasture grasses, annual lespedeza, and sericea lespe-deza. Work is also being done in the fertilization of pastures.

The meats laboratory has added an electric meat and bone saw, a meat slicer, a thermoplastic no-air-rap machine, alard rendering kettle, and some new meat blocks.

A new hog barn has been completed with facilities for sows with litters and for carrying out feeding tests and other experiments. There are sixteen individual pens for sows with litters and fifty experimental pens. Between 30 and 40 lots are now being built. There will be some one-half acre lots and some one acre lots. The hog plant is on the Ravanel Place west of the Seneca River.

Due to the construction of G. I. houses in and around the area formerly occupied by the hog lots, the Department had to disperse the swine herd until a new hog plant could be constructed. Several new sows have already been added to the new hog plant. The breeds the department is planning to keep will be: Berk-shires, Hampshires, Poland Chinas, and Duroc Jerseys.

The sheep herd includes Southdowns, Hampshires, and Dorsets. There are about 100 in all. The Hampshires, seem to be about the best breed for South Carolina, but the Dorsets are noted for having early lambs which are very good for this region. Clemson has done some very successful work on diseases and internal parasites of sheep. The old hog barn is the temporary sheep barn. Plans are now being drawn up for a sheep barn.

Mr. D. Richardson, a graduate of Clemson in the 1938 class and a major in Animal Husbandry, came to us from Orangeburg County where he was assistant county agent. He is taking Professor E. R. Hauser’s place in the faculty of the Animal Husbandry Department. Professor Hauser has gone to Missouri Agricultural College to get his Ph.D. in Animal Breeding.

All men graduating in Animal Husbandry last year were placed in good jobs before they graduated. There is still a great demand for Animal Husbandry graduates. The future of the livestock industry in this state looks very good.

POLLINATING WITH BEES

(Continued from page eight) has been so commonplace that it has been taken for granted all through the ages. However, we seem to have suddenly come to the realization that we should adopt a positive course of action in order to insure adequate pollination of his cultivated crops. The situation assumes sobering proportions when we realize that without the services of pollen-carrying insects, several hundred species of plants would automatically pass out of existence.”

OCT. - NOV. - DEC. 1947
S. C. DAIRY ASSOCIATION MEETS

GROUP IS A GREAT AID IN PROMOTING
DAIRY INDUSTRY IN SOUTH CAROLINA

By R. M. HANCKEL
Dairy, 1948

A group of South Carolina dairymen, many of whom were members of the South Carolina Dairy Industry Council, attended the North Carolina Dairy Association meeting in the spring of 1944. They were so impressed by its purpose and accomplishments that immediately upon their return they called a meeting of dairy representatives from all sections of the industry. Also invited to attend were representatives from the South Carolina Milk Producers and Distributors Association and the South Carolina Ice Cream Manufacturers Association. It was agreed upon to organize the entire industry under the name of the South Carolina Dairy Association, Inc. An incorporating board was elected to draw up the constitution and by-laws which were to be submitted for approval at the first annual convention.

Mr. C. B. Parr, a producer from Newberry, S. C., was elected first president of the organization and Mr. George B. Salley, of Orangeburg, S. C., the first secretary. The first board of directors was composed of three producers, three dairy products manufacturers, and three distributors. However, the Constitution was later changed to include six producers, giving producers equal representation with processors and distributors.

An Association office was opened on January 1, 1946, in Chester, S. C., Mr. W. L. Abernathy, Jr., as the executive secretary, was appointed to contact state legislature, officials in Washington, and all other state, national, and international dairy organizations and to keep the dairymen of South Carolina informed at frequent intervals of recent developments in the dairy industry.

In September, 1946, the President and the Secretary of the Association were authorized by the Board of Directors to appoint finance committees composed of a producer, a distributor, and a manufacturer from each of the three districts. These committees were to work out a suitable plan for collecting membership dues from the producers through the distributing and manufacturing plants.

The 1946 convention of the SCDA was held in Columbia, S. C., November 19-20, and was attended by approximately 275 dairymen. Officers elected were: president, F. S. Hanckel; vice-president, C. G. Cushman; and W. L. Abernathy, Jr., re-elected executive secretary.

Through this organization, dairymen of South Carolina—producers, distributors, and manufacturers—are working together to combat the problems facing the industry today and to plan for a bigger and better dairy products program for the future.

As stated in the SCDA constitution, it is the purpose of the organization to promote the industry particularly in regards to the production, processing, manufacture, storage, distribution, and sale of milk and other dairy products, and to recognize the general problems encountered by farmer-producers. Members are striving to improve dairy herds by breeding programs and to assist in obtaining greater milk production at fair and proper cost.

Dairy companies in the state have become more "public relations" conscious than ever before and are doing all they can to stimulate the consumption of all type dairy products by the general public, not only as requirements for a well balanced diet but as refreshing in-between snacks for children and grown-ups alike.
THE AGRARIAN PRESENTS . . . W.B. CAMP

GRADUATE IS LEADING AGRICULTURIST & PHILANTHROPIST

W. B. Camp of Bakersfield, California is one of Clemson's most successful graduates and is one of the leading figures on the national agricultural scene. Mr. Camp has been a most liberal contributor to various foundations and funds at Clemson. Recently this wealthy agriculturist from California gave Dr. Robert F. Poole, president of Clemson College, a check for $10,000 for the study of irrigation and it's adaption to the type of farming carried on in the Palmetto State. Mr. Camp was born near Gaffney, South Carolina and attended the public schools of Cherokee County.

After graduation from high school, Camp enrolled at Clemson College for a course in Agriculture. He graduated with distinction as a member of the class of '16 in Agronomy. Dr. R. F. Poole and Mr. S. C. Stribling, Agricultural Editor for the Extension Service, were classmates of Mr. Camp here at Clemson.

While at Clemson Mr. Camp took an active role in the various service clubs and societies and was outstanding as a student leader.

After the successful termination of his collegiate career, Mr. Camp entered the farming business. At the present time he is known as perhaps the largest producer of potatoes and sugar beets in the United States. W. B. Camp and Sons own a number of enterprises in California in addition to their extensive farming interests.

Mr. Camp is now a member of the Executive Committee of the Clemson Corporation. This generous donor has contributed large amounts of capital to the Clemson Foundation and to the building fund at Clemson.

Mr. Camp, who is quite prominent in agricultural circles in the United States, is in the running for the post of Chairman of the United States Chamber of Commerce. Should this former Clemson student be selected for this distinguished position, it would heap laurels upon the name of Clemson College.

W. B. Camp, Jr., and Don Camp, sons of this outstanding Carolinian who lives in California, returned to Clemson to graduate with the Class of '47 after spending several years in the service of their country.

The generous donation that this wealthy Clemson benefactor made to Dr. Poole will be used to send two men to California to study irrigation methods and it's practical application to the farms of South Carolina.

Mr. H. Z. Duffie of the Extension Service has been selected as one of the two men who will be sent for irrigation study. The other man has not been selected at this time. These men will leave in June for California to begin their work.

By granting this gracious contribution to progressive agriculture in South Carolina, Mr. Camp will make it possible for South Carolinians to have available to them in the future an ever increasing source of knowledge and "know how" on the subject of irrigation. There is a definite need for this knowledge at the present time because there are farmers in South Carolina who wish to irrigate parts of their land but do not have the correct knowledge on procedures and methods. One tobacco farmer in Darlington obtained very encouraging results after he added several inches of water to his tobacco fields. This farmer used very crude methods and his labor cost was high, nevertheless his yields increased sufficiently to cover the extra labor costs and show a much greater yield in pounds and much better quality. This is only one example of what could be done if proper information were available to the farmers of this state.

Clemson College and the people of the agricultural field in South Carolina should be most grateful to Mr. W. B. Camp for his generous gift which will make possible this forward step for scientific agriculture in the state of South Carolina.

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OCT. - NOV. - DEC. 1947
PROFESSORS LEAVE CLEMSON

Dr. S. P. Marshall, who has held the position of Associate Dairyman on the staff of the South Carolina Experiment Station for several years left recently to assume duties of Associate Professor of Dairying at the University of Florida, his alma mater. While at Clemson, he was very active in Alpha Zeta, Blue Key, and was of invaluable help to "THE AGRARIAN".

AG. PROFESSORS PROMOTED

Dr. R. F. Poole recently announced the following appointments of professors in the School of Agriculture.

Those promoted to professor are R. R. Ritchie, animal husbandry; and J. M. Stepp, agricultural economics.

Moving up to associate professor were: E. R. Hauser, animal husbandry; W. N. McAdams, agricultural engineering; R. C. Shelley, agronomy; H. J. Sefick, horticulture; R. W. Rutledge, botany; and J. B. Whitney, Jr., botany.

Receiving appointments of assistant professor were: W. C. Godley, animal husbandry; F. W. Thode, horticulture; R. E. Ware, zoology and entomology; and J. B. Cooper, poultry husbandry.

JUDGING TEAM WINS

A livestock judging team from Clemson composed of T. C. Cartwright, Louis Cato, Robert McNair, and Charles Haines as alternate, won second place in the Southeastern Collegiate Judging Contest held at the Southeastern World’s Fair which was held in Atlanta, Ga., on Sept. 29, 1947. Five teams from over the entire southeast participated with first going to V.P.I. and third to Mississippi State.

T. C. Cartwright won first place in Hereford Cattle and held third high score in the entire contest. The next contest will be held in November at Timonium, Md.

CLEMSON TO GET RADIO STATION

Through the efforts of the Agricultural Extension Service equipment has been purchased for a radio station to be set up in the library at Clemson in the near future. The station is to put on programs for the Extension Service as well as student programs from time to time.

This station is under the auspices of WAIM Anderson, is to be headed by Paul Seabrook, Horticulture ’41. While at Clemson Mr. Seabrook was a member of Alpha Zeta and Horticulture Editor of "THE AGRARIAN".

POULTRYMEN MEET AT CLEMSON

The National Poultry Science Association held its thirty-sixth annual meeting at Clemson, August 25-28, 1947. There were 248 members present representing 42 states of the United States and three provinces of Canada. This was the first convention of its kind ever held at Clemson.

NEW PROFESSORS AT CLEMSON

Beginning their work as professors in the School of Agriculture at Clemson this semester are: Dr. A. C. Mathews, a native of North Carolina who obtained his B.S. and Ph.D. at the University of North Carolina and is now teaching Botany and Plant Pathology; Dr. K. Lehotsky, who was born in Czechoslovakia and did his undergraduate work at Prague, but before coming to the U.S. to obtain his Ph.D. in Forestry from the University of Michigan and is now teaching Forestry, and Prof. James H. Ard, who graduated from Texas A. & M. and is now teaching Rural Electrification and other Agricultural Engineering courses.

DEPARTMENTAL CLUB PRESIDENTS

A.S.A.E. ____________ E. B. Rogers
Agricultural Economics ______ J. D. Bozard
Kappa Alpha Sigma _________ L. Bird
Animal Husbandry ______ T. C. Cartwright
Dairy ________________ C. E. Cousins
Horticulture ____________ J. Rodgers

FOURTEEN
ROSENKRANS HEADS AGRONOMISTS

Duane B. Rosenkrans, Managing Editor of the AGRARIAN, and vice-president of Kappa Alpha Sigma was recently elected national president of the Student Division of the American Society of Agronomists.

The annual meeting will be held in Chicago soon and Rosenkrans is now making plans to be present and preside at the meeting.

FORMER EDITOR NOW AT DURHAM

Bill Reasonover, editor of the last edition of the AGRARIAN, who finished Clemson last June, recently accepted the position of Educational and Public Relations Director with the Durham Farmers Mutual Exchange at Durham, North Carolina.

While at Clemson, in addition to being editor of the AGRARIAN, Bill was very active in many other organizations on the Clemson campus. He was a member of Blue Key, Tiger Brotherhood, Alpha Phi Omega, Wesley Foundation Council, YMCA Cabinet, Agricultural Economics Club, and Senior Council.

NEW AG. ECONOMISTS

L. D. Malphrus, a native of Jasper County who finished Clemson in 1938 and received his M.S. from the University of Tennessee recently came to Clemson as Asst. Agricultural Economist. Before coming back to Clemson he served in the Army for several years and also with the Farm Security Administration. Mr. Malphrus is now doing research in Marketing of Fruits and Vegetables.

James S. Miles, from Richland County, who graduated from the University of South Carolina and received his Ph.D. from The American University in Washington, D. C., is now connected with the S. C. Experiment Station at Clemson doing research in Marketing of Poultry and Eggs.

GRADUATE STUDENTS GET POSITIONS

Clemson graduated its first class of graduate students this past summer and all of them have acquired positions as follows:

George H. Bonnette, from Florence, is connected with the Agricultural Extension Department at Clemson.

Jackson V. McElveen, a native of Washington, D. C., is teaching Economics at Clemson. James S. Plaxico, who hails from Sharon, S. C., is doing research in Farm Organization and Management at the Virginia Agricultural Experiment Station in Blacksburg, Va.

Joe A. Martin, from Bowersville, Ga., is teaching in the Agricultural Economics Department at the University of Tennessee in Knoxville.

B. J. Todd from Loris, S. C., holds the position of Assistant Agricultural Economist at Griffin, Ga., and is currently engaged in research in Marketing of Poultry and Eggs.

J. M. ELEAZER WINS AWARD

J. M. Eleazer, Information Specialist with the Agricultural Extension Department, during this past summer received a national prize for agricultural writing from the Association of Agricultural College Editors. Second place went to an Ohioan and third to a New Yorker.

DID YOU KNOW THAT . . . .

- - - Governor J. Strom Thurmond graduated from Clemson in Horticulture in 1923?
- - - Duane B. Rosenkrans ,Managing Editor of the AGRARIAN, graduated from University of Georgia in Journalism and was editor of a Georgia weekly newspaper for a while?
- - - T. C. Cartwright, Chancellor of Alpha Zeta, recently became a proud “poppa”? And, where are the cigars, T. C. ????
- - - Dr. W. E. A. Hussman, Associate Professor of Agricultural Economics, graduated from the University of Berlin?
L. C. Martin Drug Company
P. S. McCOLLUM, owner

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Clemson
South Carolina
WINTER PROTECTION OF TREES & SHRUBS

The problems of the winter protection of deciduous trees and shrubs are largely those dealing with the protection of types that are not hardy or acclimated to their new location. In mulching trees and shrubs, care should be taken to extend the mulch out as far as the roots of the plant extend. This distance will correspond closely to the spread of the branches. This mulch, which may be of peat moss, leaves or straw, should be applied to a depth of about four inches and put on late in the season. It is best applied just before the ground freezes solidly. With plants such as some of the magnolias, abelias, some cotoneasters and similar plants, a heavier mulch, eight to twelve inches, will be desirable.

In the case of shrubs that form dense, compact masses, protection from snow is often necessary. With the larger plants, props beneath the branches are useful. With the smaller plants, tying the branches is the best solution. Strips of burlap inserted beneath the branch and tied to a stake are better than strings for this purpose.

With some plants that are not entirely hardy and are located in exposed situations, it is best to supply a screen of some kind. This screen may be a box, or evergreen boughs, or cornstalks may be placed around the plants.

AG. FAIR

One of the largest events on the campus before the war was the “Ag. Fair”. This event was participated in by student and faculty members of all departments and schools.

Last year several student leaders with the aid of Prof. John D. Lane called a meeting of student and faculty leaders to ascertain whether or not they would be interested in reviving the popular enterprise. Favorable responses were received and this year another meeting was called and plans were made for having a fair this spring, mainly sponsored by the Agricultural Departments.

An overall faculty and student chairman will have charge of the program with assistants composed of the faculty and students to serve as committeemen.

Men from all departments will be called on to help.

When you are asked to assist, don’t back down because it will take the combined efforts of all to make this show possible.

For those who are not familiar with this fair I’ll try to summarize a few of the main points.

Each department used classrooms and laboratories for showing the work done by their group. Greenhouses, barns, and field plots were also opened for inspection during this event. Some commercial concerns also exhibited their products.

This will be the first fair that Clemson has had in a long time so let’s everybody get on the ball, get busy and make it the best ever.

KEEP OFF!

After careful calculations by a member of the staff of this magazine it was discovered that six steps and approximately two seconds were saved by walking across the grass in front of the Dairy Building and Long Hall.

Now just what do you save by this shortcut? The grass is usually wet and your shoes will have to be shined more often . . . . If you shine them at all.

Recently Alpha Zeta sponsored the placing of manure on this plot of grass. Now we realize that many of our students are good farm boys and like the feel of fresh manure between their toes, but being as shoes are worn at Clemson, let’s please, stay off the grass from now on and eliminate the bald spots on the campus, and also do away with the extra odors in the classrooms.
HYBRIDS IN THE FOREST

INTEREST IN THE CREATION OF HYBRIDS
FOR FORESTS IN U. S. IS WIDESPREAD

By L. H. D. BOYKIN
Horticulture, 1948

"All our progress is an unfolding, like the vegetable bud. You have first an instinct, then an opinion, then a knowledge, as the plant has root, bud, and fruit. Trust the instinct to the end, though you can render no reason."—Emerson.

"Hybridization" is a fairly new word in our modern vocabularies. Relatively speaking, it is newer still in words and phrases peculiar to the field of silviculture. However, it is not startling that once man has succeeded in producing hybrids with one particular species of life he would seek henceforth to superimpose such principles of breeding and reproduction upon all other species of life, particularly those which man finds adaptable and useful to his own existence. Thus, the present day witnesses the presence of hybrid trees in our forests.

Man's activities account for the effort in this respect. Civilization's utilization of wood has outstripped nature's manufacturing output. The last decade has shown strikingly that the forests of the world are not producing timber as fast as the world needs it. The tree breeder has gone to work in many countries, developing new strains in the hope of increasing lumber production. It appears that hybridization offers the solution of this pressing situation.

This interest in the creation of hybrids for the forest is widespread indeed. In fact, concern in this respect appears little short of international in scope. Consider these facts: Australia and New Zealand, lacking softwood timber, a condition characteristic of the Southern Hemisphere, have led in introducing and acclimatizing foreign species; Russia has contributed to research on hybrid oaks and poplars; the British are noted for the development and analysis of ideas pertaining to the breeding of trees; Swedish interest has centered around the production of superior varieties of aspen for paper pulp production and conifers for construction lumber; Germany has given intensive attention to poplars and long-sustained interest in the conifers continues; Denmark has made noteworthy strides in indoor techniques for dwarfing trees, forcing early flowering, grafting imported scions on potted rootstock, and other ingenious devices that have reached a high stage of development; and in 1943 the Union of South Africa established a tree-breeding program; commercial operators in the Amazon Valley of Brazil have done outstanding work on quinine and rubber trees; and, as is obvious, work of this kind is quite extensive here in the United States and in Canada.

There are several fundamental differences in breeding agricultural plants and forest trees. Breeding agricultural plants requires genetic uniformity. With forest trees the natural species owe their existence and perpetuation to variability; thus some are able to survive attack by insects or disease and others invade new environments or withstand changed conditions. The timberman is accustomed to using trees from forests of natural origin and, consequently, variability does not disturb his as it would a farmer.

Establishing the uniformity and adaptability of new farm crops requires long, carefully conducted field trials by the breeders. Obviously, the average farmer must leave the matter to breeders. The forest planter is not at such a disadvantage. The interplanting of the hybrid or other new form with the standard strain or stock that would have been used throughout if the new form had not been available gives promising new trees that may be put to use as soon as they are developed or discovered, and the forest owner is not subjected to the element of risk.

The new hybrid trees can be planted at suitable intervals among a natural stand of young trees, or in every fifth row, or other selected interval where an entire area is to be planted. This method permits the covering of a greater acreage with new trees and reduces the cost involved in using a new and relatively expensive form. If the new strain proves superior, it will occupy the site at maturity, most of the slower-growing natural stand having been crowded out. Another common practice is the planting of 1200 trees to an acre where from one hundred to two hundred are desired in the final stand of trees at maturity. This excess planting demonstrates another way in which forestry differs from agriculture. Should the new strain prove inferior to the natural or planted stand, as the case may be, it will be suppressed and crowded out before the trees reach harvesting stage.

The techniques used in the hybridizing of forest trees are interesting, and the accepted techniques of today seem to assure success in such a program. The reproductive habits vary from species to species; with some trees it is possible to carry on an indoor hybridizing program and with others it must be done outdoors. Work with poplars is a good example of the former, while any program with the pine is of the latter nature.

There are two required conditions of controlled hybridization. First, the female flower of the selected female tree must be effectively protected from chance pollination during its
entire period of receptivity; and second, the female flower should be deliberately and effectively pollinated at the height of its receptivity by pollen from the selected male tree.

Using the pine as a characteristic illustration, a suitable branch bearing unopened female flowers near the tip is selected; the needles from a section of the branch axis a few inches from the tip are trimmed by means of scissors. A pad of cotton wool is wrapped around the trimmed section and a glassine bag, known as the inner bag, size 7x12 inches is placed over the branch and fastened securely. A second pad is then wrapped around this tie and a Kraft paper bag, the outer bag, 7 pound size, is placed over the glassine bag and tied whereby the pressure is on the pad. It should be noted that the Kraft bag is a mechanical protection against wind and rain; the glassine bag is the true protective covering.

The pollen is collected in a Petri dish or beaker from the selected male tree, either directly or from detached branches brought into the greenhouse and placed in water prior to the time the anthers burst open and discharge their pollen. The pollen is then screened and placed in an Erlemeyer flask that is loosely plugged with cotton wool and is stored until needed in a screw-top jar containing anhydrous calcium chloride under a cotton pad.

Pollination if affected by removing the Kraft bag. The Glassine bag is punctured with the pointed tube of a “Pollen gun”, then a cloud of pollen is driven therein by squeezing the bulb of the gun two or three times. The puncture in the glassine bag is sealed with an adhesive patch; the Kraft bag is replaced, and the inscription on the label is completed by adding designation of the male parent. Methanol is the substance used to clean the hands, glassware, pollen gun, and the like, to prevent contamination that might lead to undesirable male parentage; it is highly toxic to pollen and evaporates quickly.

A good example of a hybrid of the forest is the result obtained by crossing the poorly formed, and not very desirable, jack pine of the Lake States with the straight-growing lodgepole pine of the Sierra Nevadas. At the age of three years the hybrid trees approximate or slightly exceed the height of pure jack pines and are 179 percent of the height of the lodgepole pine. Of course, the logical locality in which to use this hybrid in planting is in the native region of the jack pin, because the hybrid has the straight, erect growth habit of the lodgepole pine.

At the present, information on inheritance in forest trees is almost entirely limited to comparisons between parental and F₁ materials, with only a few reported observations on F₂. The observations on the F₂ generations are largely of an incidental nature. Such mode of inheritance from F₁ data is assumed; the F₂ generation is required to prove, or disprove, the assumption.

In genetics, time is of the essence; long periods between generations represent time obstacles, and the great emphasis placed upon direct utilization of F₁ divert attention from the F₂. However, research workers are always seeking short cuts. Recent work of John T. Buchholz of the University of Illinois gives promise of the possibility of recognizing a pine of superior growth rate by an examination of some of the embryos even before the seeds mature. The difference in fifteen months and three to five years alters the picture greatly.

The hybridization of forest trees is scarcely past the stage of infancy. However, the work is being pushed forward eagerly and steadily. The forests of tomorrow will pride themselves on their hybrid basis. Inheritance will have taken on new meaning for those who “lift their leafy arms to pray.”
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WESTMINSTER, SOUTH CAROLINA
SOIL CONSERVATION

PROPER EDUCATION OF FARMERS
ESSENTIAL FOR SOIL CONSERVATION

Education is a prerequisite of conservation. It is essential to develop an intelligent public understanding of the value and importance of natural resources in terms of individual and national life. Only out of such understanding will the impetus to act rise.

Many of the techniques through which the process of education is advanced are familiar. They include the diffusion of information through radio broadcasts; through the printed word — in official publications, newspapers and magazine articles, textbooks, and so on. These well known procedures are most effective in presenting the problem of conservation to the public as a whole.

Demonstrations in soil and water conservation have been established in most of the important farming sections. To a large extent, each of them is a cross section of the agricultural lands for miles around.

The method employed in these demonstrations is to help land operators with the actual job of controlling erosion, conserving rainfall, and making the necessary changes in the pattern of land use. Agronomists, soil specialists, agricultural engineers, foresters, and other technicians combine their skills to attack the problem simultaneously along several fronts.

In setting up a demonstration area, the first step is to obtain a base map of the entire project. With the map as a guide, the technicians are able to draw up individual farm plans for each farmer in the area who is interested in adopting a conservation system. If the farmer decides to adopt the conservation plan finally worked out, he signs a cooperative working agreement with the Federal Government. He agrees to follow the recommended land use practices over a five year period and to contribute as much as possible in way of labor, power, seed, and materials toward the establishment of an effective conservation system.

One of the most important developments of recent years in the field of soil conservation has been the emergence of the soil conservation district as a mechanism for cooperative conservation action on a local scale by the users of the land themselves. Through these districts, established under state law, the facilities of the government, both state and Federal, can be brought most effectively into play in response of the direct demand of farmers and ranchers. The districts represent a significant development in bringing democratic processes to bear upon the problems of the land.

The object of these districts are, in general, to enable farmers to raise and maintain a suitable standard of living and to perpetuate agricultural resources within the district. More specifically, they are (1) to bring about the adoption of necessary practices for the conservation of soil resources (2) to make the adjustments necessary to a wise land use program, such adjustments being directed toward an increased income for individual farmers; and (3) to develop necessary land management practices such as would provide for the efficient utilization of extra feed and pasture resources resulting for the realignment of farm cropping systems.

The function of the district is to develop and carry out a program of proper use for all the land within its boundaries. The district itself may undertake to carry out the work; or it may request the assistance of the Soil Conservation Service and other agencies of the government. Actually the latter course usually is followed since districts, in the beginning at least, seldom have the facilities for extensive reorganization of land use.

From the standpoint of the country's soil resource alone, the need for action is now clear enough. Failure to act in the past already has caused the essential ruin or serious impoverishment of some 250 million acres of farm and grazing land. Now erosion is active on an additional 175 million acres.

There is no longer a question of the need for coping with these evils. There is no longer a question as to whether the nation can cope with them. We know that it can. Millions of acres already have been effectively anchored against erosion. New and practical measures are being developed continually through research and experiences on the land. Many of our economic and social difficulties on the land are beginning to be solved. We are moving constantly ahead though not yet with sufficient speed.

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OCT. - NOV. - DEC. 1947
LOW INCOME FARMS —  
A CHALLENGE AND AN OPPORTUNITY

By JAMES N. YOUNG  
Agricultural Economics, 1948

Farming is more than a business, it is a way of life. Only those who have experienced this way of life can realize its full significance. Any man who begins farming and looks upon his fields and flocks as just so much money in the bank is not only an ignoramus but a fool. He lacks absolutely the first essentials of a good farmer, namely the love of nature and a high regard for “The Good Earth.”

To those for whom farming is nothing more than a “way of life,” the size of the farm and the amount of income are immaterial. The incentive to plant, the thrill of seeing things grow, the job of reaping the harvest are all satisfactions that cannot be measured in terms of dollars and cents. In fact, in this situation a small farm and a low income have the advantage because one finds it difficult to admire a cow in the pasture if there’s a Cadillac in the garage.

Since agriculture does present advantages as a way of life it is a mistake to believe that every farmer with a low income is weighted down with problems and burdens. Whether low income is the chief agricultural problem, therefore, depends upon the perspective or the attitude of the individual concerned and his essential purpose in being a farmer. We must admit, however, that a changed attitude is not a solution to the problems faced by all low income farmers since, after all, attitudes cannot pay taxes or put a sink in the kitchen. It is imperative that there must be a basic cash income, and desirable that it be adequate to maintain a high level of living on the farm.

To say that one of the problems of low income farmers is low income appears to be circular but is nevertheless a plain statement of fact. How can a farmer with insufficient funds accept even a generous “benefit payment” when it is contingent upon a small contribution from himself? How is it possible for a farmer with little land and less money to increase his opportunity to earn? This is another of those “vicious circles” where a man is handicapped because he has a low income and he has a low income because he is handicapped. “To him that hath not shall be taken away even which he hath.”

There are some, of course, who dispose of the problems of low income farmers by saying that the trouble is with the farmer, that he is lazy, unambitious and undeserving of assistance or consideration. This is a serious charge and if it were true it would reflect discredit upon a very large group of our population. We know, however, that this is not true. Farmers in the low income group are just as concerned about their status and just as anxious to do something about it as any group in similar circumstances. Given equality in health, education and opportunity, a farmer will come as near raising himself by his own bootstraps as anyone in any other occupation or profession.

Low income farmers, however, do have problems, among the chief of which is the large number of people who live on them in relation to the land they operate. The average size farm in South Carolina, for example, is only about 75 acres and well over half of them are under 50 acres. When it is realized that only about one acre out of three is crop land and that the average crop land harvested per capita of the farm population in South Carolina is less than five acres, (as compared to 25 acres in Iowa and 15 acres in the United States as a whole) the question is raised as to how a decent standard of living is to be maintained on so small an area, assuming even maximum returns from every acre. During the last year before the war, one-third of the farms in this state were reported to have produced total products valued at less than $400.

According to one economist, we have in South Carolina “approximately one percent of the land area of the country, one percent of the land in farms, one percent of the crop land and less than one percent of the agricultural wealth, but 2.5 percent of the farms and 3 percent of the farm population.” If we expect as much in proportion as the rest of the country, we will have to be three times as good. Remember this is an average figure. For many of our farmers the situation is even more hopeless.

Material increases in production and net income for South Carolina farm workers are largely dependent upon (1) more capital investment to provide more land, livestock, machinery, fertilizer, and other capital items per worker and (2) opportunities for non-farm employment for a larger proportion of the population than has found such employment in the past.

“Readjustments of this type will create opportunities for farm workers in the South to equal the per capita production and income of farm workers in other regions. But on many farms the change involves shifting from a simple cash-crop of farming with hand-and-mule operations, to relatively complex soil-conserving types of farming, that involve forage, pasture, winter cover crops, livestock, mechanical power, and larger farms. This kind of farming requires more management and more mechanical skill for successful operation.—This means that successful, modern farming requires less brawn and more brains than the farming of a generation ago, and that it takes a large capital investment to become established on the (continued on page twenty-three)
THE REVIVAL OF THE CHESTNUT

CHESTNUT GROWING, ONCE AGAIN, AT PERIOD OF IMPORTANT DEVELOPMENT

For the second time in its history, chestnut growing in America is at a period of important development.

The native American chestnut (Castanea dentata) which was once abundant throughout the Eastern United States, has all but disappeared from this country because of chestnut blight. Several European varieties (Castanea sativa) are still successfully grown on the West Coast.

Many Japanese varieties (Castanea mollissima) have been developed, but the tendency was to stress size and appearance of nut rather than quality. Consequently the nuts were not favorably accepted on the market. Several of these varieties have recently come to light, which compare favorably with the best European or Chinese varieties, and are now being propagated by nurserymen.

The Chinese chestnut (Castanea crenata) was introduced into this country during the early part of this century by the U.S.D.A. It is grown chiefly as a seedling tree. It is known for its hardiness, fruitfulness, resistance to blight, as well as the size and general character of the nut. About a dozen varieties have been recognized and propagated to some extent. About half of these are now available from commercial sources, as grafted trees. Difficulty of propagation has limited their distribution.

About sixteen million pounds of chestnuts are imported every year. Southern Europe's crop comes in about November the first, while Oriental nuts come in about a month later.

In America the ripening period begins in late August in Georgia and about a month later in Maryland.

Chestnuts tend to deteriorate rapidly regardless of how they are handled. The period during which they may be marketed and consumed is relatively short. A week or ten days is about as long as they may be held safely on a market stand without the use of cold storage.

The chestnut grows in most soils but good soil is important for the production of a full crop of first-grade nuts. It takes between eight and twelve years for a seedling to produce a full crop of nuts.

Most chestnuts are self-unfruitful, therefore it is important that more than one seedling tree or 2 varieties be planted to insure a good crop when the trees start to bear.

Harvesting should be prompt in order to prepare the nuts for market as soon as possible. It is also an important step in the control of certain pests that get on the nuts after they have fallen. The weevils, which incubate from eggs deposited inside the nuts, seem to be the greatest menace to the eastern chestnut industry. The only control method developed is orchard sanitation.

Two kinds of weevils, curculio proboscis, F. and C. auriger (casey), both native to America, attack chestnuts. They lay their eggs in the nuts. As much as 90 to 100 percent wormy nuts have been reported for a specific season and locality. Until recently the only control method was orchard sanitation. Preliminary tests with the application of wettable 50 percent D. D. T. at the rate of 4 pounds to 100 gallons resulted in nearly 100 percent control. (A tentative spray program recommends 3 applications, the first approximately 30 days before the first nuts fall, and the second and third applications following the first at 12 day intervals.)

Present indications are that the best zones for chestnuts coincide closely with those for the peach, although it is probable that chestnuts may be grown both farther north and farther south than the peach. It has been found necessary, in certain areas, to protect the trunks of young trees from sun scald.

At present, there is much experimental work being done on the chestnut and there is good reason to expect new and better varieties to be developed. The government is restocking some forests with these resistant varieties, and perhaps in the near future there will be chestnuts in the American forests again.

LOW INCOME FARMS—A CHALLENGE AND AN OPPORTUNITY

(continued from page twenty-two)
Ditching With Dynamite

(continued from page five)

placed at every third hole. The wide spaces between cross rows tends to leave ridges on the bottom of the ditch; therefore this type of loading should not be used for loads heavier than one cartridge per hole.

When ditches over six feet in depth are required, it is necessary to use a large number of cartridges per hole. This makes a single vertical column impractical, and large diameter holes are needed. This method of loading is called the Post-Hole Method, because post-hole diggers are commonly used to dig the holes in which the dynamite is placed. A ditch with bottom width equal to the depth and top width equal to three times the depth can usually be obtained if the load is placed between one-half and two-thirds the required depth.

If the surface is composed of heavy sod or root mat, the three methods named may produce undersized ditches. The simplest and most practical method of removing the pressure caused by heavy sod or root mat is by the Relief Method of ditch blasting. Auxiliary ditches are blasted on either side of the proposed ditch, thereby breaking up the surface and giving a much wider main ditch. The relief ditches are always loaded by the Single-Line Method, regardless of which method is used for the main ditch. When using the Relief Method, both relief ditches are loaded and separately exploded before the main ditch is loaded.

Test shots of approximately twenty-five feet in length should be made to determine if the amount of dynamite is correct.

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ALFALFA APPEARS IN STATE

HIGH YIELDS INDICATE POSSIBILITIES FOR SOUTH CAROLINA

Alfalfa has the possibility of becoming one of South Carolina’s leading leguminous hay crops. This plant has been the principal hay producing crop in the mid-western states for many years and at the present time is beginning to appear more and more on the farms of the Palmetto State. High yields from farms surveyed indicate major possibilities for this perennial legume. The first requirement for establishing a successful alfalfa patch is the selection of soil having a pH range from 6.5 to 7.5. Soil samples may be sent to Clemson College for this analysis. The second major step in this program is the application of the correct amount of the proper fertilizers. South Carolina recommendations show that the application of 400 to 800 pounds of 4-12-8 at seeding time. Before seeding, 4 to 6 tons of limestone with 1000 to 2000 pounds of superphosphate should be applied and worked in the soil. Each spring 400 to 500 pounds of 0-12-12 should be added as top dressing. The correct amount of plant food of the recommended constituents is by far the most important factor in the establishment of a profitable alfalfa crop.

The variety best suited to the soils and climate of South Carolina is “Common Kansas”. This variety was developed in the non-irrigated areas of Kansas. Seed should be treated with Nitragin or some other suitable soil inoculant.

Alfalfa should be seeded between September 15 and November 15 at the rate of 35 pounds per acre. This promising legume should be seeded with a grass seeding attachment on a grain drill for best results. If the seed is broadcast, cultipacker and a smoothing harrow should be employed to cover the seed to a depth of one half to one inch. However, it is essential that the seed bed be reasonably firm to insure a good stand. For the first year no cultivation is required because the plant roots are striving to establish themselves firmly in the soil. After the first cutting a special alfalfa spring harrow or a disc harrow set at half the angle required for heavy work should be employed to cultivate the crop.

This perennial should be cut when the basal shoots are one to two inches high. This may be in the bloom stage or before blooming begins. In a dry season, with plants yellow and stunted, alfalfa should be cut after the first rain. The farmer must be careful never
to cut his crop too late in the fall or new growth will be prevented before the first frost.

In the Piedmont section of South Carolina the average profitable life for this crop is three or four years with an average yield of three to four tons per acre. Generally the crop is cut three times per season, each cutting yielding about one ton per acre on the average of farms studied.

One of the outstanding farms surveyed was located in Anderson county. A ten-acre field was established three years ago and this season over three tons per acre has been harvested. This is an indication of what can be accomplished with this legume that has such a bright future in South Carolina agriculture.

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Daffy Definitions

Here’s a column inspired by one of man’s most fundamental motivations—his primitive urge to make a buck. And why not?—a buck’s a buck. Get daffy, chums.

* * *

Synonym—the word you use when you can’t spell the word you want.

Pedestrian—a married man who owns a car.

Hangover—the penalty for switching from Pepsi-Cola.

Snoring—sheet music.

* * *

You’ve really got us to the wall when we’ll pay a buck apiece for these. But that’s the deal. $1 each for those we buy.

Good Deal Annex

Sharpen up those gags, gagsters! At the end of the year (if we haven’t laughed ourselves to death) we’re going to pick the one best item we’ve bought and award it a fat extra $100.00.

Little Moron Corner

Murgatroyd, our massive moron, was observed the other afternoon working out with the girls’ archery team. Somewhat unconventionally, however—instead of using bow and arrow—Murgatroyd was drawing a head on the target with a bottle of Pepsi-Cola. When asked “Why?” by our informant, who should have known better—“Dunnnmm,” responded Murgatroyd brightly, “because Pepsi-Cola hits the spot, stupid!”

$2. legal tender, for any of these we buy. Brother, inflation is really here!

Easy-Money Department

Just like Social Security. Only quicker. Pepsi-Cola pays up to $15 for jokes, gags, quips and such-like for this page. Just send your stuff to Easy Money Department, Pepsi-Cola Company, Long Island City, N.Y., along with your name, address, school and class. All contributions become the property of Pepsi-Cola Company. We pay only for those we print. (Working “Pepsi-Cola” into your gag, incidentally, won’t hurt your chances a bit.) Dough-shy? Get dough-heavy! Or start a new hobby—collecting rejection slips. We’ll help you out—one way or the other.

He-She Gags

Know a He-She gag? If you think it’s funny, send it in. If we think it’s funny, we’ll buy it—for three bucks. We’ll even print it. Sheer altruism. Take ten—and see if you don’t come up with something sharper than these soggy specimens:

She: Why don’t you put out that light and come sit here beside me?

He: It’s the best offer I’ve had today—but I’d rather have a Pepsi.

Get Funny . . . Win Money . . . Write a Title

He: Darling, is there nothing I can do to make you care?

She: D. D. T.

He: D. D. T.?

She: Yeah—drop dead twice!

She: Right now I’m interested in something tall, dark and handsome.

He: Gosh! Me?

She: No, silly—Pepsi-Cola!

Yep, we pay three bucks apiece for any of these we print. You never had it so good.

What’s the right caption? We don’t know. You tell us. For the line we buy we’ll ante $5. Or send in a cartoon idea of your own. $10 for just the idea . . . $15 if you draw it . . . if we buy it.
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